DETAILED ACTION

1. This action is responsive to communications regarding the applicant's amendments and arguments, filed on June 24, 2008.

Claims 1, 4, 33 and 50 have been amended.

Claims 13 - 32, 34 and 43 – 49 have been canceled.

Newly submitted claims 51 – 54 is directed to an invention that is independent or distinct from the invention originally claimed. Therefore, claims 51-54 will not be entered. See Election/Restrictions below.

Claims 1 – 12, 33, 35 – 42 and 50 – 54 are pending.

Election/Restrictions

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1 – 12, 33, 35 - 42 and 50, drawn to method, system and apparatus for storing data structure, compressing the data structure and transmitting the data structure, classified in class 709, subclass 203.

II. Claims 51, 52 and 54, drawn to a method for detecting the proximity between clients and merge the information, classified in class 709, subclass 224.

III. Claim 53, drawn to a method for generating bitmap mask and the logic of generating the bitmap mask based on data entries, classified in class 707, subclass 101.

Inventions I, II and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not

overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. See MPEP § 806.05(d).In the instant case, subcombination I has separate utility as follow:

a. Subcombination I has separate utility such as the method, system and apparatus for storing data structure, compressing the data structure and transmitting the data structure for use in a network environment having client and server architecture for sharing and processing data or information.

b. Subcombination II has separate utility such as the method for detecting the proximity between clients and merges the information in application relating to detecting and observing operating characteristics or conditions of computers in network management and monitoring.

c. Subcombination III has separate utility such as the method for generating bitmap mask and the logic of generating the bitmap mask based on data entries in application relating to data structure conversion, compression, compaction, optimization and for data compatibility.

3. Examiner contacted Mr. Jordan M. Becker on October 8, 2008 to inform that newly submitted claims 51-54 will not be entered.

Response to Arguments and Amendments

4. Applicant's arguments, see Objection Specification, Section 112(2) Rejection, Section 112(1) Rejection, filed June 24, 2008, with respect to claims 4, 6, and 8 have been fully considered and are persuasive. The specification objection and 112 rejections of the claims 4, 6 and 8 have been withdrawn.

Regarding claim 50 in Section 101 Rejection, Applicant's arguments have been fully considered but they are not persuasive. Applicant invokes 35 U.S.C § 112, sixth paragraph and the claim limitation does not limit the claimed to statutory subject matter. Applicant claims "means for storing in a data structure", "mean for acquiring" and "mean for dynamically compressing", which are software per se. A software program which is not tangibly embodied on a computer readable medium or apparatus is merely a manipulation of abstract ideas. In view of **Applicant's disclosure, specification paragraph 0054, "the techniques described above can be implemented within the agents 3 and server 2 using software"**, it is not limited to tangible embodiments, instead being defined as including both tangible embodiments (special-purpose hardware) and intangible embodiments (software). As such, the claim is not limited to statutory subject matter and is therefore non-statutory.

Applicant's arguments with respect to claims 1 - 12, 33, 35 – 42 and 50 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

5. Claims 2, 7 and 9 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claims 2, 7 and 9 are depended on claim 1 and the subject matter is recited in the claim 1 as follow

"the data structure including network addresses of the clients and network proximity measurements for the clients".

6. Claim 35 is objected to because of the following informalities: "A processing system as recited in **claim 34**". Examiner believes this is a typo error as the claim 34 is canceled. The claim 35 will be read as "A processing system as recited in **claim 33**" in this office action. Appropriate correction is required.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 50 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Applicant claims "means for storing in a data structure", "mean for acquiring" and "mean for dynamically compressing", which are software per se. A software program which is not tangibly embodied on a computer readable medium or apparatus is merely a manipulation of abstract ideas. In view of Applicant's disclosure, specification paragraph 0054, "the techniques described above can be implemented within the agents 3 and server 2 using software" as such, it is not limited to tangible embodiments, instead being defined as including both tangible embodiments (special-purpose hardware) and intangible embodiments (software). As such, the claim is not limited to statutory subject matter and is therefore non-statutory.

The claims 4 - 7 and 10 - 12 are rejected under 35 USC 101 for being "software per se".

The claimed invention as recited in the claim 50 are addressed to "means for storing in a data structure", "mean for acquiring" and "mean for dynamically compressing", that can be interpreted as referring to lines of programming within a computer system, rather than referring to the system as a physical object. In view of Applicant's disclosure, specification paragraph 0054, "the techniques described above can be implemented within the agents 3 and server 2 using software", it is not limited to tangible embodiments, instead being defined as including both tangible embodiments (special-purpose hardware) and intangible embodiments (software).

Accordingly, the claims become nothing more than sets of software instructions which are "software per se".

"Software per se" is non-statutory under 35 USC 101 because it is merely a set instruction without any defined tangible output or tangible result being produced. The requirement for tangible result under 35 USC 101 is defined in *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368, 47USPQ2d 1596 (Fed. Cir. 1998).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 – 12, 33, 35 - 42 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6212570 to Hasebe et al. (hereinafter "Hasebe"), Claims 1 – 12, 33, 35 - 42 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6212570 to Hasebe et al. (hereinafter "Hasebe") and further in view of U.S. Patent Application Publication No. 20020172203 to Ji et al. (hereinafter "Ji").

As to claim 1, Hasebe discloses a method comprising:

storing in a data structure information representing a plurality of clients on a network, the data structure including network addresses of the clients and network proximity measurements for the clients (column 8 lines 31 – 45, column 10 lines 15 – 25, i.e. routing information tables in network exchange device 40 as data structure, the data structure including network identifier, communication rate, delay, route and policy as network addresses and proximity measurements);

transmitting the data structure to a remote server configured to use the data structure to redirect content requests from the clients (column 8 lines 12 – 45, column 9 lines 64 – 67 and column 10 lines 1 – 5, column 10 lines 15 – 25, i.e. communication

exchange device 40 exchange routing information to the neighboring devices to use the data structure for redirect content requests based on the shortest route).

Hasebe does not explicitly disclose dynamically and losslessly compressing the data structure based on the network addresses and the network proximity measurements in the data structure as claimed.

Ji discloses claimed dynamically and losslessly compressing the data structure based on the network addresses and the network proximity measurements in the data structure (paragraph 0015, paragraph 0028 where Ji discloses the dynamically compressing the data structure using 16K/C or 16/Kc routing based on network proximity and network addresses i.e. IP address compression base on network address, subnet address and index).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Hasebe with the teaching of Ji to reduce the storage for storing information in the systems. Furthermore, the combination would enable the transferring of data in a format that reduce the network bandwidth as well as improving the route look up processes in network systems (Ji, paragraphs 14 – 16).

As to claim 2, combination of Hasebe and Ji discloses a method as recited in claim 1. Hasebe further discloses the data structure comprises a network address of each of the clients and the network proximity information (column 8 lines 31 – 45, column 10 lines 15 – 25, i.e. routing information tables in network exchange device 40

as data structure, the data structure including network identifier, communication rate, delay, route and policy as network addresses and proximity measurements).

As to claim 3, combination of Hasebe and Ji discloses a method as recited in claim 1. Hasebe does not explicitly discloses claimed said dynamically compressing the data structure based on the network proximity information comprises: detecting when proximity measurements for at least two clients which share a network address prefix are within a predetermined range of each other; and in response to the proximity measurements being within the predetermined range of each other for the at least two clients, merging entries for the at least two clients in the data structure as claimed.

Ji disclosed claimed said dynamically compressing the data structure based on the network proximity information comprises: detecting when proximity measurements for at least two clients which share a network address prefix are within a predetermined range of each other (paragraph 0015, paragraph 0029 and paragraph 0049 where Ji discloses the network address of the clients with most significant 16 bits are interpreted as segment i.e. within a predetermined range); and in response to the proximity measurements being within the predetermined range of each other for the at least two clients, merging entries for the at least two clients in the data structure (paragraph 0032 and Table 1 where Ji discloses the merging entries for clients in the data structure).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Hasebe with the teaching of Ji to reduce the storage for storing information in the systems. Furthermore, the combination would enable the transferring of data in a format that reduce the network bandwidth as

well as improving the route look up processes in network systems (Ji, paragraphs 14 – 16).

As to claim 4, combination of Hasebe and Ji discloses a method as recited in claim 1. Hasebe does not explicitly disclose losslessly decompressing the data structure as claimed.

Ji discloses claimed losslessly decompressing the data structure (paragraphs 0048-0053 where Ji discloses the decompressing procedure to extract data information).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Hasebe with the teaching of Ji to reduce the storage for storing information in the systems. Furthermore, the combination would enable the transferring of data in a format that reduce the network bandwidth as well as improving the route look up processes in network systems (Ji, paragraphs 14 – 16).

As to claim 5, combination of Hasebe and Ji discloses a method as recited in claim 4. Ji does not explicitly disclose said losslessly decompressing the data structure comprises splitting a merged entry in the data structure representing at least two clients into a plurality of separate entries as claim.

Ji discloses claimed said losslessly decompressing the data structure comprises splitting a merged entry in the data structure representing at least two clients into a plurality of separate entries (paragraph 0032 where Ji discloses K value may change

dynamically i.e. splitting a merged entry in the data structure into a plurality of separate entries).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Hasebe with the teaching of Ji to reduce the storage for storing information in the systems. Furthermore, the combination would enable the transferring of data in a format that reduce the network bandwidth as well as improving the route look up processes in network systems (Ji, paragraphs 14 – 16).

As to claim 6, combination of Hasebe and Ji discloses a method as recited in claim 4. Hasebe does not explicitly disclose said losslessly decompressing the data structure comprises decompressing the data structure in response to a detected change in network conditions as claimed.

Ji discloses claimed said losslessly decompressing the data structure comprises decompressing the data structure in response to a detected change in network conditions (paragraph 0032 where Ji discloses K value may change dynamically i.e. decompressing the data structure in response to a detected change in network conditions such as a new route is added).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Hasebe with the teaching of Ji to reduce the storage for storing information in the systems. Furthermore, the combination would enable the transferring of data in a format that reduce the network bandwidth as

well as improving the route look up processes in network systems (Ji, paragraphs 14 – 16).

As to claim 7, combination of Hasebe and Ji discloses a method as recited in claim 1. Hasebe further discloses the data structure comprises a network address of each of the clients (Figure 8, column 8 lines 31 – 45, column 10 lines 15 – 25, i.e. routing information tables in network exchange device 40 as data structure, the data structure including network identifier, communication rate, delay, route and policy as network addresses and proximity measurements).

As to claim 8, combination of Hasebe and Ji discloses a method as recited in claim 7. Hasebe does not explicitly discloses generating an encoded value from each of the network addresses; storing each of the encoded values in the data structure in association with a corresponding network address; and modifying one or more of the encoded values to indicate entries in the data structure that have been merged as claimed.

Ji discloses claimed generating an encoded value from each of the network addresses (paragraph 0028 where Ji discloses a generating an encoded value from each of the network addresses i.e. T1_RIB table);storing each of the encoded values in the data structure in association with a corresponding network address (paragraph 0028 where Ji discloses a storing each of the encoded values in the data structure in association with a corresponding network address i.e. T1_RIB table); and modifying one or more of the encoded values to indicate entries in the data structure that have been

merged (paragraph 0028 where Ji discloses a one or more of the encoded values to indicate entries in the data structure that have been merged i.e. T2_RIB table).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Hasebe with the teaching of Ji to reduce the storage for storing information in the systems. Furthermore, the combination would enable the transferring of data in a format that reduce the network bandwidth as well as improving the route look up processes in network systems (Ji, paragraphs 14 – 16).

As to claim 9, combination of Hasebe and Ji discloses a method as recited in claim 1. Hasebe discloses the data structure comprises the network proximity information (Figure 8, column 8 lines 31 – 45, column 10 lines 15 – 25, i.e. routing information tables in network exchange device 40 as data structure, the data structure including network identifier, communication rate, delay, route and policy as network addresses and proximity measurements).

As to claim 10, combination of Hasebe and Ji discloses a method as recited in claim 9. Hasebe further discloses the method is performed in a content delivery agent configured to deliver content to the plurality of clients (column 8 lines 31 – 45, column 10 lines 15 – 25, i.e. routing information tables in network exchange device 40 as data structure, the data structure including network identifier, communication rate, delay, route and policy as network addresses and proximity measurements and function as a content delivery agent to deliver content to clients).

As to claim 11, combination of Hasebe and Ji discloses a method as recited in claim 9. Hasebe further discloses the method is performed in a request routing agent configured to route content requests from any of the plurality of clients (column 8 lines 31 – 45, column 10 lines 15 – 25, i.e. routing information tables in network exchange device 40 as data structure, the data structure including network identifier, communication rate, delay, route and policy as network addresses and proximity measurements and function as a request routing agent to route content requests between systems).

As to claim 12, combination of Hasebe and Ji discloses a method as recited in claim 1. Hasebe further discloses reporting information from the data structure to a request routing server (column 8 lines 12 – 45, column 9 lines 64 – 67 and column 10 lines 1 – 5, column 10 lines 15 – 25, i.e. communication exchange device 40 exchange routing information to the neighboring devices to use the data structure for redirect content requests based on the shortest route).

As to claim 33, Hasebe discloses a processing system comprising (Figure 8, i.e. an information distribution device selection system):

a processor (column 12 lines 9 – 16, Hasebe inherently discloses systems with a processor processing requested information and routings);

a network communication device to enable the processing system to communicate with a plurality of clients over a network (column 12 lines 9 – 16, Hasebe inherently discloses systems as network communication devices processing requested information and routings); and

a storage device containing instructions which, when executed by the processor, cause the processing system to perform a process that includes creating a data structure that contains network addresses of the plurality of clients, acquiring network proximity information relating to the clients (column 8 lines 31 – 45, column 10 lines 15 – 25, Hasebe inherently discloses a storage device for storing routing information tables in network exchange device 40 as data structure, the data structure including network identifier, communication rate, delay, route and policy as network addresses and proximity measurements);

Hasebe does not explicitly disclose and dynamically and losslessly compressing the data structure based on the network proximity measure information and the network addresses of the plurality of clients as claimed.

Ji discloses claimed and dynamically and losslessly compressing the data structure based on the network proximity measure information and the network addresses of the plurality of clients (paragraph 0015, paragraph 0028 where Ji discloses the dynamically compressing the data structure using 16K/C or 16/Kc routing based on network proximity and network addresses i.e. IP address compression base on network address, subnet address and index).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Hasebe with the teaching of Ji to reduce the storage for storing information in the systems. Furthermore, the combination would enable the transferring of data in a format that reduce the network bandwidth as

well as improving the route look up processes in network systems (Ji, paragraphs 14 – 16).

Regarding claim 35, the subject matter is essentially the same as claim 3, except that it sets forth the claimed invention as a system rather than a method and rejected for the same reasons as applied hereinabove.

As to claim 36, combination of Hasebe and Ji discloses the system of claim 35. Hasebe does not explicitly discloses: forming a mask to represent each of the network addresses; storing the masks in the data structure; and modifying one or more of the masks to indicate entries in the data structure that have been compressed as claimed.

Ji discloses claimed forming a mask to represent each of the network addresses (paragraph 0028 where Ji discloses a forming a mask to represent each of the network addresses for a mask table i.e. T1_RIB table); storing the masks in the data structure (paragraph 0028 where Ji discloses a storing a mask to represent each of the network addresses in a mask table i.e. T1_RIB table); and modifying one or more of the masks to indicate entries in the data structure that have been compressed (paragraph 0028 where Ji discloses a modifying one or more of the masks to indicate entries in the data structure that have been compressed i.e. T2_RIB table stores modifying mask of entries).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Hasebe with the teaching of Ji to reduce the storage for storing information in the systems. Furthermore, the combination would enable the transferring of data in a format that reduce the network bandwidth as

well as improving the route look up processes in network systems (Ji, paragraphs 14 – 16).

Regarding claims 37, 38, 39, 40,41 and 42, the subject matter is essentially the same as claims 10, 11, 12, 4, 5 and 6, respectively, except that it sets forth the claimed invention as a system rather than a method and rejected for the same reasons as applied hereinabove.

As to claim 50, Hasebe discloses an apparatus comprising (Figure 8, i.e. an information distribution device selection system):

means for storing in a data structure information representing a plurality of clients on a network, the data structure including network addresses of the plurality of clients (column 8 lines 31 – 45, column 10 lines 15 – 25, Hasebe inherently discloses a storage device for storing routing information tables in network exchange device 40 as data structure, the data structure including network identifier, communication rate, delay, route and policy as network addresses and proximity measurements).

means for acquiring network proximity measurement information relating to the clients (column 9 lines 30 – 34, column 8 lines 31 – 45, column 10 lines 15 – 25, i.e. routing information in table 100 is updated when a new route is detected and the routing information tables in network exchange device 40 including network identifier, communication rate, delay, route and policy as network addresses and proximity measurements).

Hasebe does not explicitly discloses a mean for dynamically compressing the data structure based on the network proximity measurement information and the network addresses of the plurality of clients as claimed.

Ji discloses claimed a mean for dynamically compressing the data structure based on the network proximity measurement information and the network addresses of the plurality of clients (paragraph 0015, paragraph 0028 where Ji discloses the dynamically compressing the data structure using 16K/C or 16/Kc routing based on network proximity and network addresses i.e. IP address compression base on network address, subnet address and index).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Hasebe with the teaching of Ji to reduce the storage for storing information in the systems. Furthermore, the combination would enable the transferring of data in a format that reduce the network bandwidth as well as improving the route look up processes in network systems (Ji, paragraphs 14 – 16).

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANH TAI V. TRAN whose telephone number is (571)270-5129. The examiner can normally be reached on Monday through Thursday from 8:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached on (571)272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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